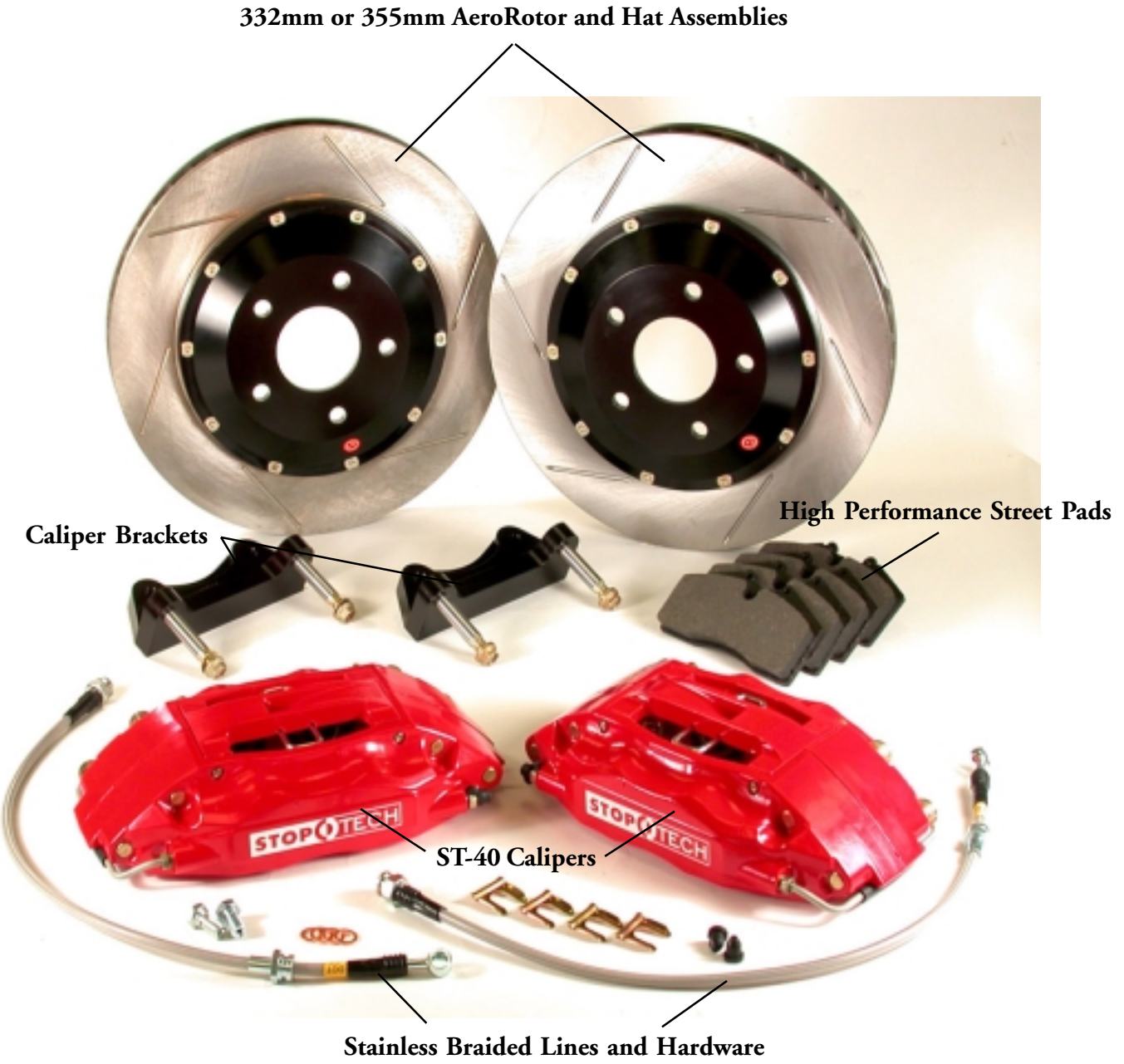
# Installation Instructions
# Toyota Supra
# 1993-1998

# 332 & 355mm Front Big Brake Upgrade

STOPTECH
HIGH PERFORMANCE BRAKE SYSTEMS

## COMPONENT IDENTIFICATION


332mm or 355mm AeroRotor and Hat Assemblies
Caliper Brackets
High Performance Street Pads
ST-40 Calipers
Stainless Braided Lines and Hardware

# Toyota Supra Big Brake Kit

***This is a representative photograph. The actual components in your kit may appear slightly different.***

# APPLICATION DISCLAMER

## Caliper Clearance

**Most 17" wheels will clear the outer diameter of the caliper of the 332mm kit and most 18" wheels will clear the 355mm kit. However, the more critical clearance is the gap between the spokes of the wheel and the face of the caliper. Do not assume a 19, 20 or even 24 inch wheel will clear the face of the caliper. *The actual metal-to-metal distance measured from the stock rotor face to the inside of the wheel spokes is 56.25 mm for the 332mm or the 355mm kit. We recommend at least 2mm of additional clearance.* See the Wheel Fitment Drawing page on our website for more specific measurements at www.stoptech.com.**

**Final fitment of the wheel to the caliper is the responsibility of the customer.**

## Wheel Spacers

**Wheel spacers can provide extra clearance to the outer face of the caliper. This will also space out the entire wheel, widening the track width of the vehicle. Fender clearances should be checked on lowered cars, and longer lug studs or wheel bolts are usually required. Note: The Wheel Industry Council has issued guidelines advising wheel spacers not be used.**

**It is the responsibility of the customer to insure wheel spacers are properly specified and installed.**

## Brake Vibration - THIS IS IMPORTANT!

**The most common cause of brake vibration is improper bedding of pads and rotors or improper pad selection for the specific driving environment. Rotor runout may also cause vibration, but precision manufacturing and inspection typically means runout is not an issue. Double disc grinding insures the rotor runout is within +/- 0.002" when installed on our aluminum hat and controls thickness variation within 0.0003". Under the most extreme conditions, any rotor may warp, but uneven pad deposition is a more typical vibration cause. If the system is not properly bedded in, or street pads are run on an open track, uneven pad deposits will occur causing an ever worsening vibration. Failure to immediately address a pad deposition/vibration issue may lead to permanent damage of the rotors. Please read and understand the bed-in procedures included with this manual. If you have any questions, please contact the StopTech Customer Service Department for assistance.**

**STOPTECH is not liable for vibrations caused by extreme usage or improper break-in procedures.**

## Brake Noise

**Certain brake pad compounds make more noise than others. Proper anti-squeal shim plates between the caliper pistons and backing plate of the pad help reduce the problem. Anti-squeal lubricants are also available to reduce some of the noise. The reality is, performance pads are more prone to brake squeal.**

**The customer is responsible for any squeal related problems due to pad selection.**

# Important Notices

## Wheel Fitment:

**Do not assume your wheels will fit. An outline drawing of your StopTech Big Brake kit is available on our website at http://www.stoptech.com. Measure the distance from the outer face of your stock caliper to the inner face of your wheel spokes, or make a template according to the instructions on the website and determine if a wheel spacer may be necessary. DO THIS BEFORE YOU INSTALL YOUR KIT!**

## Cleaning of Rotors:

**The AeroRotors supplied with this kit are coated with a water soluable, environmentally friendly rust inhibitor. This coating MUST BE WASHED OFF WITH SOAP AND WATER before installation. Brake cleaner is not as effective as soap and water. Even if it doesn't look as if anything is coming off the rotor, the rust inhibitor is there and must be entirely cleaned. Rotors will quickly rust without protection. If the rotor is not rusty, it's still coated. After cleaning, you will see the rotor immediately start to develop a slight rust color. This is normal and desirable as it indicates all the rust inhibitor has been removed.**

## Rotor and Pad Break-in:

**Proper rotor and pad break-in is essential to the performance of your new brake system. Failure to properly break-in the brakes will seriously impact how well they work and how long they last. The number one cause of brake vibration is uneven pad material deposition on the rotor. Proper break-in will greatly minimize such problems.**

**Follow the break-in procedures listed later in this manual as closely as possible.**

**If you have any questions about wheel fitment, rotor cleaning or break-in of a particular pad type, please call our Customer Service Department @ 310-325-4799 X 105 or you can e-mail directly to support@stoptech.com**

# Toyota Supra Front Axle Kit

**Please, *believe us*, it will be better to read and understand this ENTIRE Installation Manual, including the included Break-in Procedures before starting the installation.**

## Safety Notice

**Improper handling of a vehicle, especially while raised and supported by jack stands, ramps or other mechanical means can cause serious bodily injury or even death. It is strongly recommended that a trained, experienced mechanic, with proper equipment, install the Big Brake Kit as supplied by StopTech LLC. StopTech LLC assumes no liability expressed or implied for the improper installation or use of this product or its components.**

## Liability No Warranty

**Automobile racing and performance driving, whether sanctioned or not, on or off the street, is dangerous. Products used in such environments / applications are subject to stresses and conditions outside of normal use, wear and tear. All equipment sold or provided by StopTech LLC is sold WITHOUT WARRANTY, EXPRESSED OR IMPLIED. No warranty or representation is made to the product's ability to protect the user from injury or death. The user assumes all risk. StopTech LLC is NOT responsible for any damage, consequential or otherwise for equipment failure or malperformance after installation. Under no circumstance are we liable for labor charges or loss of use.**

## Tools and Equipment Required

**Note: Some different models or years may use different size fasteners. Every effort has been taken to correctly identify the proper size tool for each job. Occasionally, the manufacturer may use an alternate fastener. Check that each tool correctly fits the fastener before loosening or tightening.**

**17mm wrench or socket, 1/2" drive suggested**
**14mm wrench or socket**
**12mm wrench or socket**
**11mm box wrench**
**10mm wrench, flare wrench suggested**
**1/2" socket**
**Torque wrenches capable of 10-85 ft/lb settings**
**5mm Allen (hex) wrench**
**Needle nose or small regular pliers**
**Cutting wheel tool**
**Small drip tray or several rags**
**Small funnel**
**Anti-Sieze compound**
**Brake bleed bottle**
**1 pair of jack stands or means of supporting vehicle**
**Plastic or non-marring mallet**

**- DOT 3 or 4 Brake Fluid. Check manufactures' recommendation for compatibility. StopTech recommends flushing brake fluid every 1-2 years, or more often under severe usage conditions. If not done recently, the installation of a brake kit is an excellent opportunity to refresh your brake fluid.**

**Additional items you may need include:**

**- Adhesive backed lead wheel weights**

**This kit contains the following:**

**1 pair of ST-40, 4 piston calipers sized specifically for the Toyota Supra**

**1 set of high performance brake pads**

**1 pair of either 332 X 32mm rotors or 355 X 32mm rotors, mounted to anodized billet 7075-T6 aluminum hats, using floating drive pins and Inconel® anti-rattle hardware**

**1 pair of 6061-T6 aluminum caliper adapter brackets, with stainless steel mounting studs pre-installed using thread locker.**

**4ea. 7/16-20 Jet Nuts**

**4ea. 12mm washers**

**1 pair of stainless steel covered Teflon brake lines**

**1 pair of Banjo Bolts**

**2 pair of copper washers**

**1 pair of rubber end caps**

**1 pair of line locator bolts**

## Caliper, Hat and Bracket Finish Disclaimer:

**Many wheel-cleaning solutions contain *strong acids* that may damage the finish on any caliper and aluminum anodized finish, especially the plating on the hardware. Check for adverse effects by trying a small amount of the cleaner in question on an inconspicuous area. Avoid over spraying, and rinse cleaning solutions off as quickly as possible. *STOPTECH will not be held liable for damage to caliper, hat or bracket finish due to corrosive chemical exposure.***

**A level, stable and clean surface suitable for supporting the car on jack-stands should be used for the installation.**

### Step 1

### Raise Vehicle and remove wheels

**Apply Parking brake and block rear wheels.**

**Break loose the lug nuts on both front wheels before jacking up the car.**

**Refer to the Owners Manual for correct location for jacking up the vehicle. Jack up the vehicle and secure on a pair of jack stands.**

**NEVER LEAVE ANY VEHICLE SUPPORTED WITH ONLY A JACK,
ALWAYS USE JACK STANDS.**

## Step 1 (continued)

**Note: All Photographs Show Right Side Installation Unless Noted Otherwise. Vehicle shown in this manual has non OE lines (stainless) and rotors (slotted), your vehicle may vary slightly but all instructions are the same.**

**After securing the vehicle at a convenient height, remove the front wheels.**

**Note: If you remove the bottom lug nut last while holding the bottom of the tire, it will lessen the chances of the wheel tilting on it's own and make removal easier.**

## Step 2

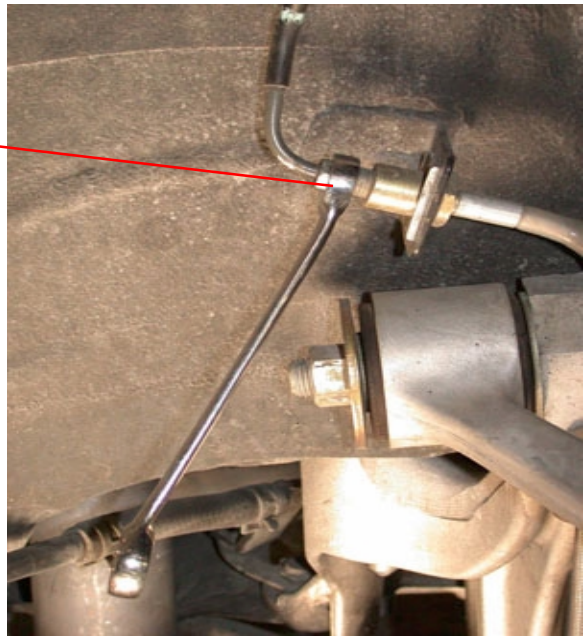
### Disconnect Stock Brake Line

**WARNING -** ***Brake fluid will damage most painted surfaces. Immediately clean spilled brake fluid from any painted surfaces.***

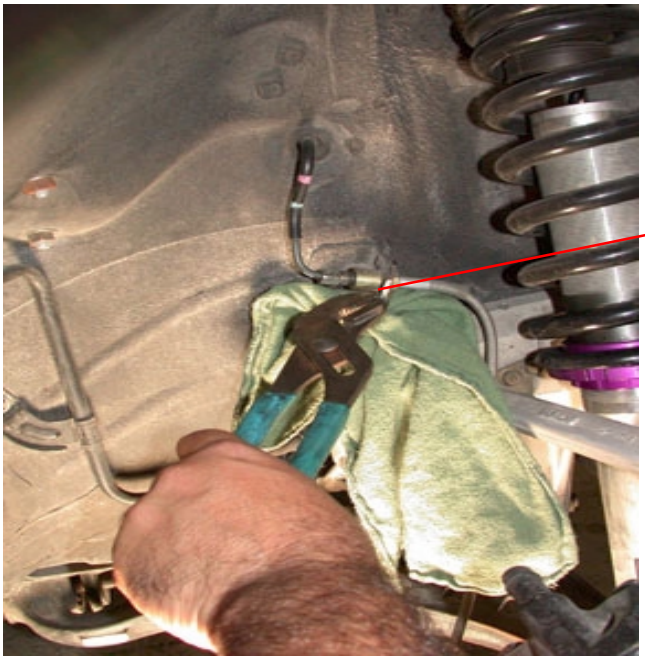
***Note- Be sure the cap is securely installed on the master cylinder. If the cap is loose or removed, it is likely more fluid will drip.***

**Place a drip tray or several rags directly below the inboard brake line connection. If the area around the brake line connection to the chassis and strut is dirty, clean with brake cleaner or appropriate cleaning agent**

**Use a 10mm flare wrench to slightly loosen the hard line fitting from the stock brake line.**



## Step 2 (continued)

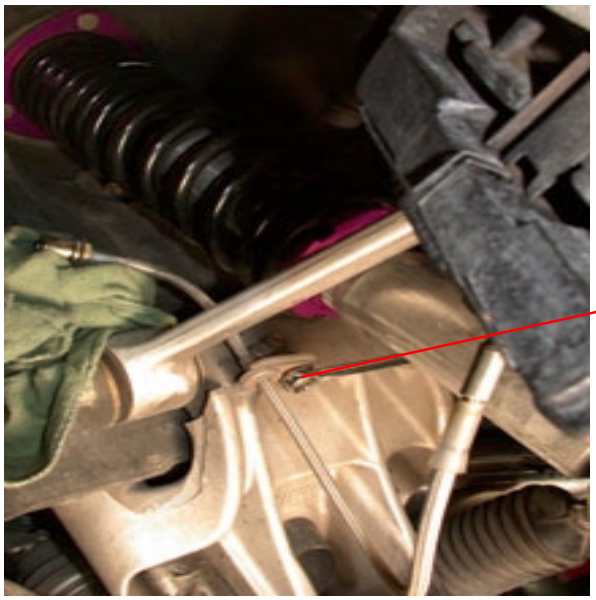


**Use a screwdriver or pliers to remove the metal spring clip holding the stock brake line to the chassis bracket.**

**Retain the clip. It will be used with the new brake line.**

**Finish unfastening the solid brake line and pull it clear of the bracket.**

**Quickly snap one of the supplied black rubber caps over the end of the hard line. This should control brake fluid loss for the duration of the installation.**



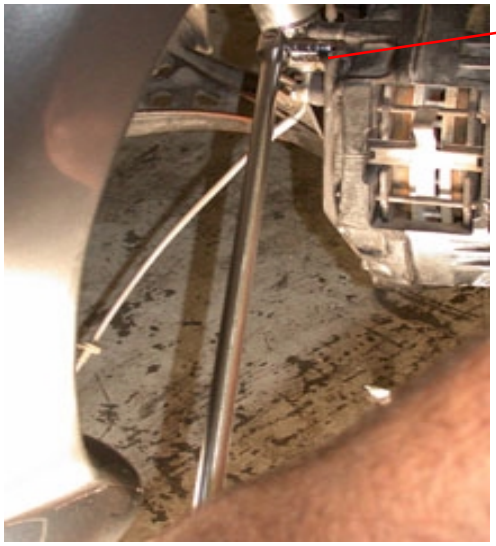
**Using a 12mm wrench or socket, remove the bolt holding the line positioning bracket to the vehicle.**

**Be careful of any fluid which may drip from the end of the line.**

## Step 3

## Remove Stock Caliper & Rotor

**Note: It is helpful to turn the steering away from the side you are working on so the wrench handle clears the rear of the wheel well.**



**Remove the two stock caliper bolts with a 17mm wrench or socket. Set these bolts aside for use in a later step.**

**Caliper bolts may be very tight from the factory. Ensure that you have a good purchase on the head of the bolt and are in a good position to turn the wrench or socket.**

**Remove the caliper with stock brake line attached. There may be some leakage from the open end of the brake line, especially if the pads/pistons on the caliper are retracted.**

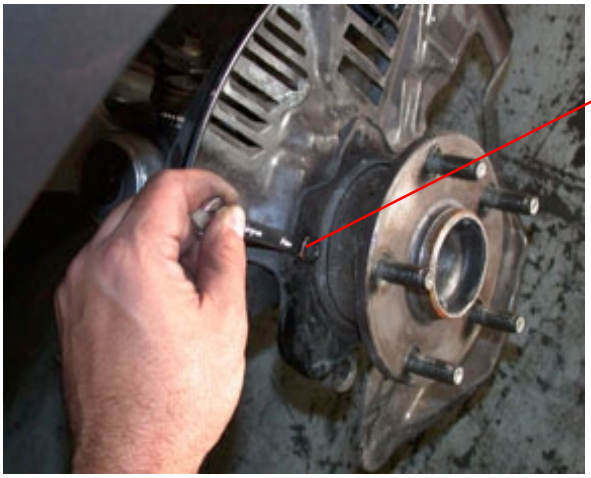
**Spindle with caliper and rotor removed.**

**Remove the stock rotor. It may be necessary to strike the outer edge with a non-marring hammer if corrosion prevents the rotor from simply pulling off. If so, place a wheel nut on one of the studs first to prevent the rotor from falling when it comes loose.**

## Step 4

**Remove Slash Guard/Dust Shield**

**Warning: Use of power tools can be dangerous. If you are not qualified to use a cut-off tool as described, seek the help of a trained professional. ALWAYS wear safety glasses when working with or around power tools.**



**Use a 10mm wrench or sockett to remove the bolts holding the dust shield**

**Use a cut-off wheel to cut the edge of the shield in the area shown. Cut as far as possible without cutting into the spindle or upright.**

**Use a plier to twist un-cut portion of the shield until it tears through.**

**Rotate the shield and make a second cut far enough from the first that when the cut section is removed the shield can be worked off the upright.**

## Step 5
## Install Caliper Bracket

Apply a few drops of 262 Loctite to the last few threads of each caliper bolt.

Install the caliper adapter bracket to the spindle using the stock caliper bolts. The pre-installed studs face rearward, and the bracket mounts on the outboard side of the mounting lugs, as shown.

Torque caliper bracket bolts to **80-85 lb-ft.**

## Step 6
## Install AeroRotor Assembly

Rotors ***MUST*** be cleaned with soap and water prior to installation. Not doing so will damage the rotors and pads and prevent the brakes from performing properly. Even though it may not look like anything is washing off, the rust inhibitor is in place and must be removed. Not cleaning the rotors will severely impact the performance of your new brake system.

Scrubbing AeroRotor with ScotchBrite pad, soap and water.

**Do not skip this step!**

**Step 6 (continued)**

**Install hat and rotor assembly and hold in place with 2 lug nuts.**

**Be sure rotor is seated squarely on hub face. If necessary, clean the face of the hub with a wire brush or similar means.**

***Be sure the rotor assemblies are on the correct side of the car. Reversing the rotors will severely decrease the cooling capacity of the system.***

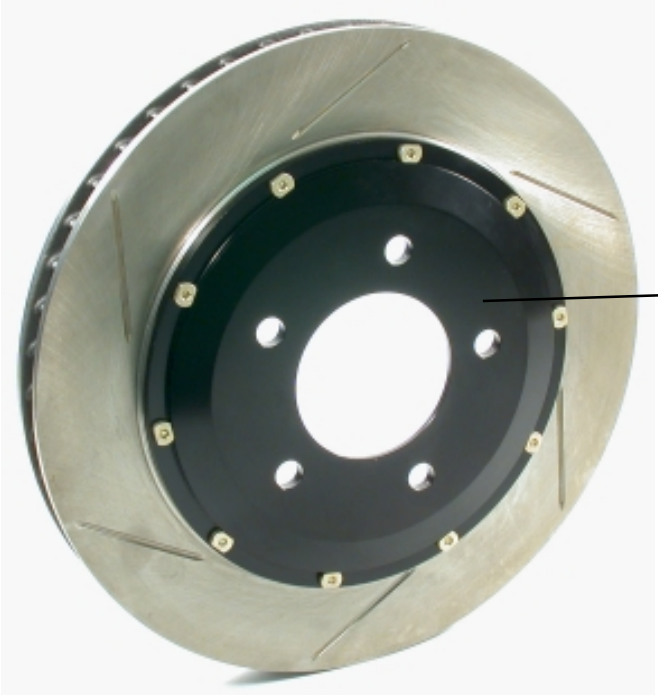
***The rotors are clearly marked "L" and "R" with orange tags on the rotor hats. If the tags are not legible, the vanes inside the rotor should lean to the rear of the car on the top-side of the rotor.***

***(See Pages 13 & 14 for more detailed images)***

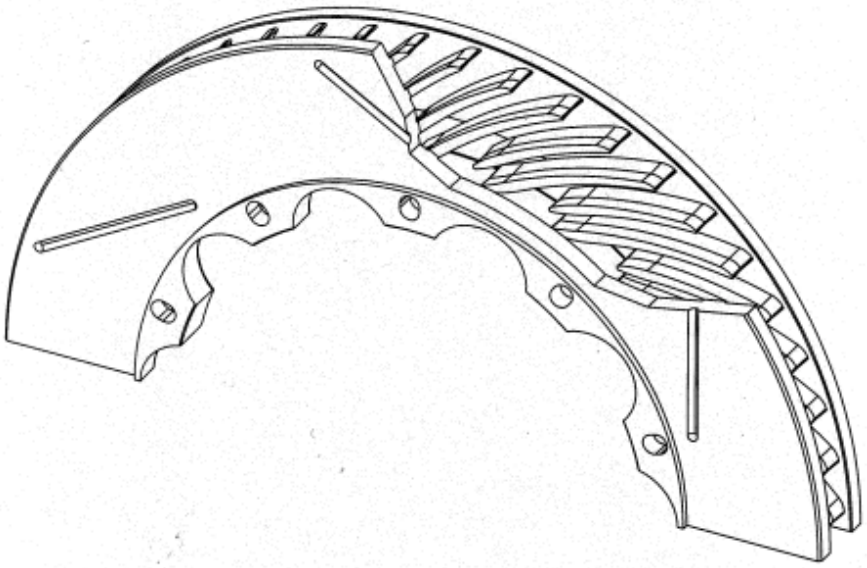
# Left Side Rotor

**Driver's Left**

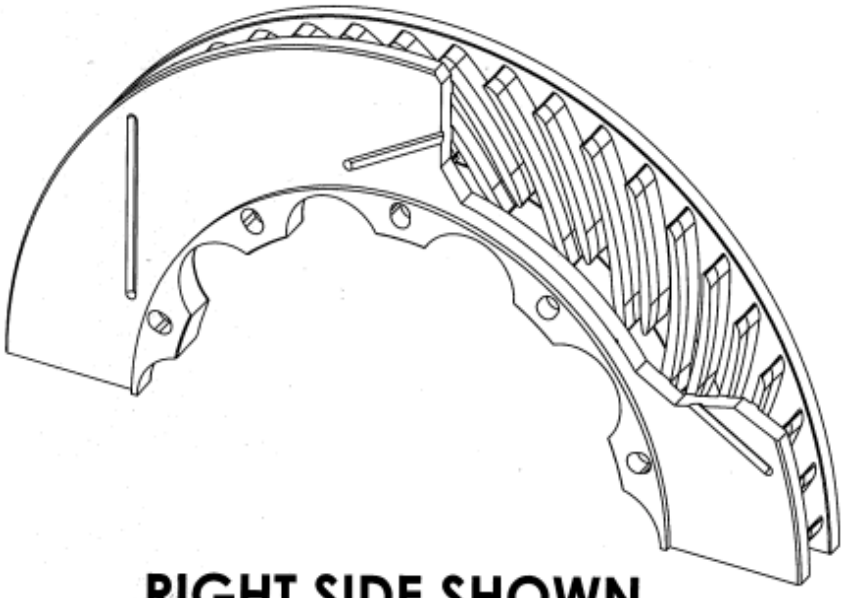
# Right Side Rotor




**Driver's Right**

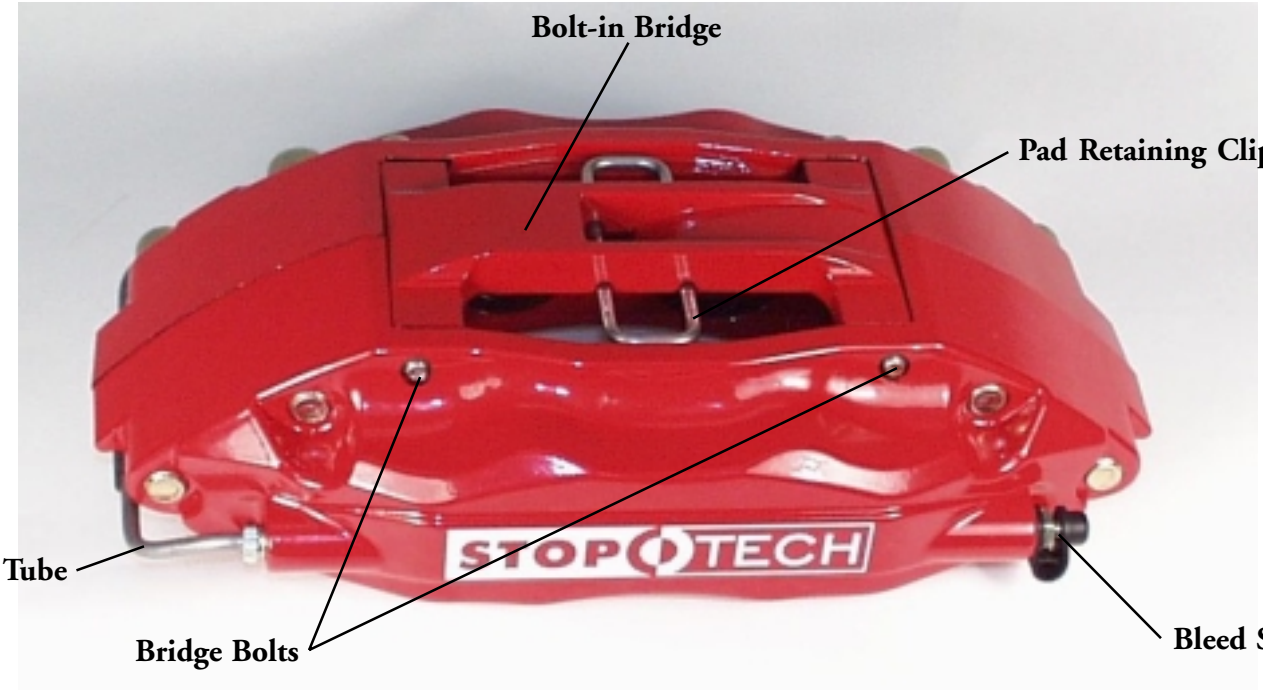


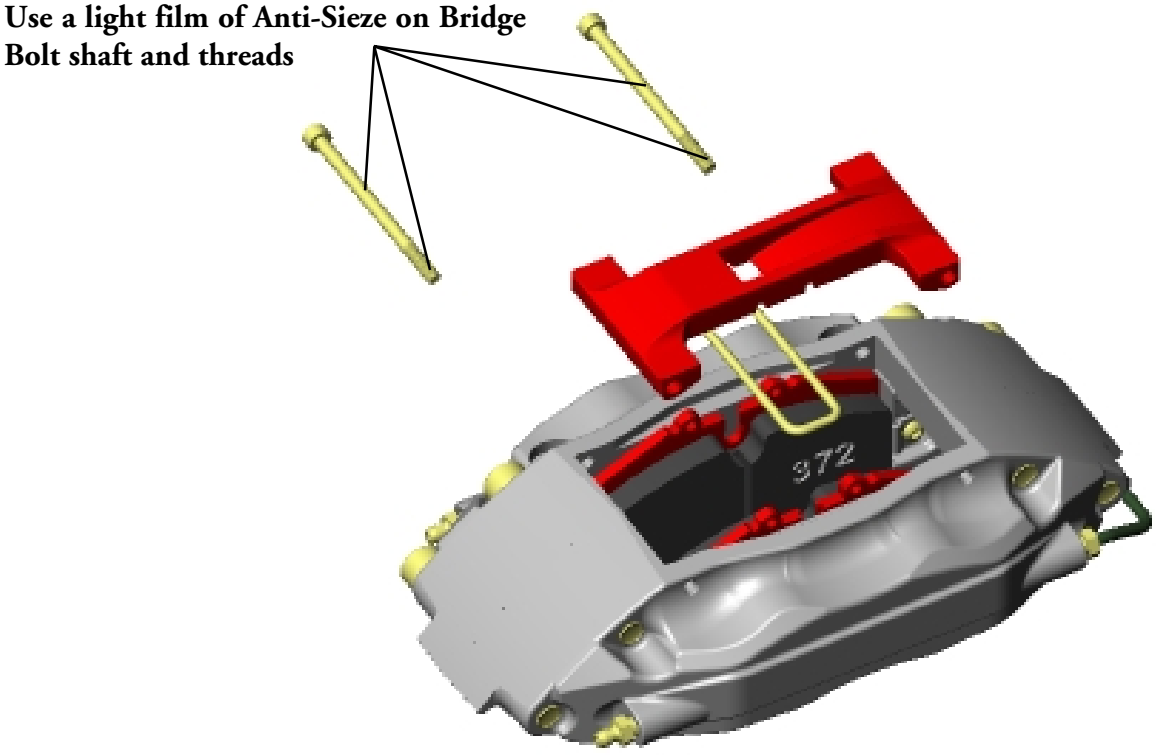
**LEFT SIDE SHOWN**



**RIGHT SIDE SHOWN**

# Caliper Component Identification




**The ST-40 caliper uses a Porsche style pad.**

**The Friction Materials Standards Institute (FMSI) number for the pad backing plate is**

**D372**

**Please see the FAQ section of our website for further pad interchange information. www.stoptech.com**

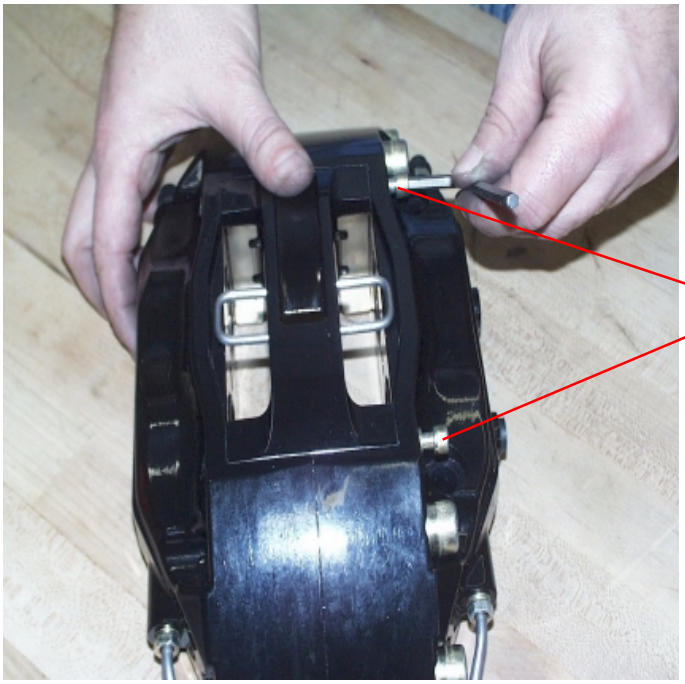
## Step 7

## Install Caliper and Pads

- **Determine the left and right side calipers. The calipers are marked on each box.** ***As a check, the bleed screws always go to the top of the caliper.***

**Remove the 2 bolts holding the caliper bridge using a 5mm Allen wrench.**

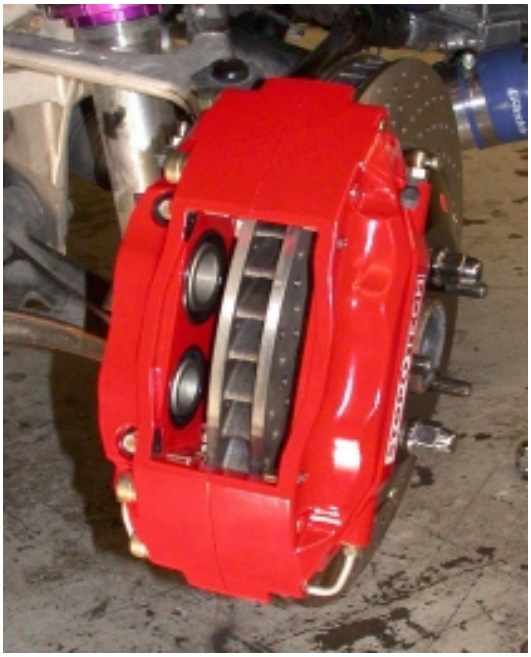
**Remove the caliper bridge taking note of the direction it is installed in and the correct location of the pad retaining wire clip, which typically, but not always, stays attached to the bridge.**




***In order to stiffen the caliper, the bridge is a snug fit and the bolts may be tight when removing. Keep turning bolts gently with pressure applied in the direction of removal.***

***After removing the bolts, it may be necessary to tap the bridge out from the inside of the caliper with a plastic or leather hammer or similar tool. The handle of a tool works well for this. With use, the bridge and bolt will become easier to remove and install.***

## Step 7 (Continued)



**Install the caliper onto the adapter bracket studs with the bleed screws on the top side of the caliper.**

**Slide the caliper over the mounting studs, making sure it is square and evenly started on both studs. It may necessary to gently tap the caliper into position with a non-marring hammer or mallet.**

**Install the Jet nuts onto each stud with one 12mm washer under each nut**

**Tighten the Jet nuts to 40-45 lb-ft of torque using a 1/2" socket.**

**Slide the brake pads into position in the calipers. Be sure the friction side of each pad is facing the rotor.**

***(Yes, they have been installed backward before!)***

## Step 7 (continued)

Install the bridge by sliding it into position and rocking it until one of the bolt holes lines up. Be sure the bridge is slid straight and parallel into the caliper body opening.

***Note: The bridge is directional and the "air-scoop" detail should face down on the Supra kit.***

Apply a light film of anti-sieze compound onto the bridge bolt shaft and threads. Insert the first bridge bolt and start the first few threads using a 5mm Allen wrench. Gently press the opposite side of the bridge with the palm of your hand, or tap with a mallet until the second bolt engages the hole. With pressure still applied, start the second bolt. Torque each bolt to **8-10 lb-ft.** DO NOT OVER TORQUE BRIDGE BOLTS! Snug is tight enough.

If the fit of the bridge into the caliper is tight it may be necessary to tap into position with a mallet. While applying pressure to the bolt head, adjust the position of the bridge until the bolt slides more freely into place.

**WARNING:** DO NOT HAMMER BRIDGE **BOLTS** INTO PLACE, TAP BRIDGE, NOT BOLTS.

Apply pressure to head of bolt

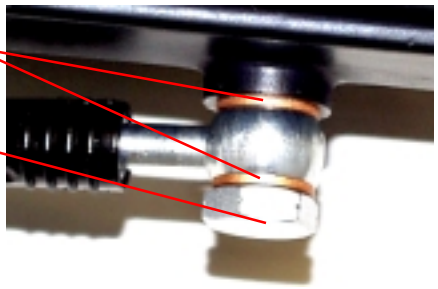
If necessary, apply pressure on bridge to position properly. Do not hammer bridge too deep into the caliper as you may deform the pad retaining spring clip.

## Step 8
**Attach the stainless brake line**

**Install the banjo bolt into the caliper with a copper crush washer on each side of the Banjo fitting. Route the line approximately the same as the stock brake line.**

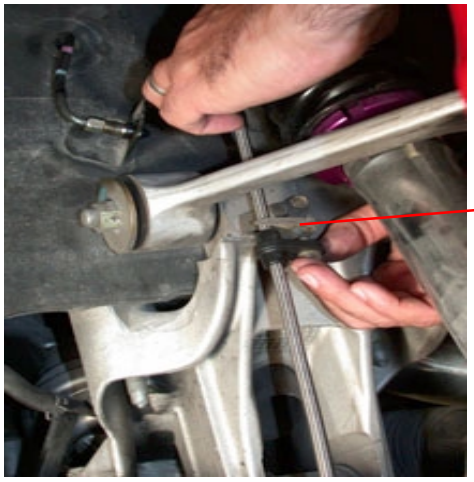
**Copper Crush Washers**

**Banjo Bolt**



**Torque to approximately 14 lb-ft using a 14mm wrench.**

**The Banjo bolt only needs to be tightened enough to seal the crush washers. Excessive torque can damage the threads inside the caliper and/or damage the Banjo bolt.**



**Install the line locator tab in the same spot as the stock line using the new bolt supplied with the kit.**

**Remove the rubber cap from the hard line and screw the fitting into the new brake line by hand for a few turns before tightening with a 10mm flare wrench. Be sure the flats on the line fitting line up in the chassis bracket to assure proper fit and retention.**

**Re-install the stock retaining clip, tapping it into place with a small hammer.**

## Step 9

## Bleed Brakes

***Complete installation on both sides of the vehicle before bleeding the system.***

***Note: The calipers and lines will need to fill with fluid, quickly draining the master cylinder reservoir. Keep a close watch on the fluid level when initially bleeding the system. Do not allow the master cylinder reservoir to run dry and draw in air. Doing so may require the brake system to be serviced by a certified brake technician.***

**Bleed the brake system using an 11mm wrench on the bleed screws:**

**- The sequence for bleeding the brakes should be:**

1. **Right outboard bleed screw**
2. **Right inboard bleed screw**
3. **Left outboard bleed screw**
4. **Left inboard bleed screw**

**Though a torque wrench is typically NOT used on bleed screws, as a reference, torque for bleed screws should be 100-140 INCH/Pounds.**

**Because of the unusual angle of the caliper on some vehicles, it may be necessary to use the following special technique to bleed the brakes for the first time:**

**Remove both caliper bracket bolts leaving the caliper attached to the bracket**
**Tilt the caliper to the vertical position shown and support the caliper so the pads are still over the rotor**
**Bleed the brakes**
**Reinstall caliper bracket bolts**
**Tighten both caliper bracket bolts to the specified torque**

**This special bleeding tecnique will not be required again unless air becomes trapped in the calipers.**

**Vehicle shown may not be the same as the vehicle in this manual.**

**After initially bleeding the system, gently tap the caliper body with a non-marring mallet or hammer to dislodge any small air bubbles and re-bleed.**

**After bleeding, apply a constant pressure to the brake pedal and check all connections, including bleed screws, and both ends of the line for leaks.**

**Brake fluid will damage most painted surfaces. Immediately clean spilled brake fluid from any painted surface, including the caliper. Though caliper paint is designed to resist harsh chemicals, prolonged exposure will damage the finish.**

**Step 10**

**Re-install wheels**

## Check wheel to caliper clearance before installing wheels!

***Note: Some wheels are balanced on the inside with adhesive backed lead. If the lead is on the outboard edge, behind the spokes, it may interfere with the caliper. If necessary, note weight and location and place a new piece of the same weight further inboard or outboard to clear the caliper. If you rotate tires regularly, you should check the wheel weight positions on all four wheels.***

**Re-install the wheels and torque the lug nuts to your wheel manufacturer's specifications. It may be necessary to snug the bolts before lowering the vehicle and then torque the wheels when the car is on the ground. Alternatively, an assistant may depress the brake pedal while you tighten the wheel nuts to the proper torque setting.**

**Carefully test-drive the vehicle in a safe area at low speed to insure all components are working correctly. Then, follow pad and rotor break-in procedures on following pages.**

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STOPTECH
HIGH PERFORMANCE BRAKE SYSTEMS

## AeroRotor™ Installation & Break-in Procedure

# READ THIS NOW

**FAILURE TO READ, UNDERSTAND AND FOLLOW THESE PROCEDURES WILL CAUSE PERMANANT DAMAGE TO YOUR BRAKE ROTORS AND KEEP THE SYSTEM FROM WORKING AT IT'S FULL CAPACITY.**

**The majority of brake system problems are due to improper installation and/or break-in of the rotors and pads. By reading and understanding the following, you will avoid the most common causes of poor brake performance and vibration. FAILURE TO READ AND UNDERSTAND THIS MAY CAUSE SERIOUS PERMENANT DAMAGE TO YOUR NEW ROTORS.**

## Wash Non-Plated AeroRotors with SOAP AND WATER before installation.

**StopTech coats non-plated AeroRotors with a water soluable, environmentally friendly rust inhibitor that MUST be cleaned before use. A non-plated rotor looks like bare metal, plated rotors are bright silver in color and do not need to be washed. Even though you may not see a change in the rotor color, if the rotor is not rusty, the rust inhibitor is there. Use soap and water, NOT BRAKE CLEANER to wash the rotors. A small piece of Scothbrite works well to scrub with. When cleaned and rinsed properly, the surface of the rotor will immediately show a light rust color which is normal.**

## Break in your new pads and rotors by carefully following the procedure described below and on the opposite side of this page.

**Breaking in rotors and pads is critical to the optimum performance of your new brakes. When breaking in new parts, you are not only heat cycling the pads, but depositing a layer of pad material onto the rotor face as well. If not broken in properly, an uneven layer of pad material will be deposited onto the rotor causing vibration.** ***Virtually every instance of a "warped" rotor is attributed to uneven pad deposition.***

***Note: Plated rotors must be driven with gentle braking until CAD plating is worn off rotor faces BEFORE starting the break-in procedure. Do not use brakes aggressively until plating is worn off, typically several miles of driving.***

**Typically, a heavy braking street driver will experience approximately 1 to 1.1G's of deceleration. At this rate, ABS will be activated on such equipped vehicles. A moderate braking effort is needed to properly break in rotors and pads. If ABS intervention or lock-up was called 100% brake effort, a stopping force of approximately 70-80%, just short of ABS intervention or lock-up is a general estimate of pedal effort you are trying to achieve.**

**(Please see other side)**

**3541 Unit A, Lomita Boulevard, Torrance, CA 90505 (310) 325-4799**
**www.stoptech.com**

**Document: 98-300-0001**
**Rev. I 06-27-02**

## Note-
## Bedding of pads should not be done in wet weather or wet road conditions.

**After completeing installation, make a series of 10 stops from 60 to 5-10 MPH. At the end of each stop, immediately accelerate to 60 again for the next stop. Run all stops in one cycle.**

**During the 60 to 5-10 MPH series of stops, the exact speed is not critical. Accelerate to appoximately 60 and begin the braking cycle. As you approach 5-10 MPH, it is not necessary to watch the speedometer, keep your eyes on the road and approximate your speed at the end of each cycle. DO NOT COME TO A COMPLETE STOP, AS YOU WILL IMPRINT PAD MATERIAL ONTO THE ROTOR, CAUSING A VIBRATION.**

**There are several indicators to look for while breaking in the system:**

**On the 8th or 9th stop, there should be a distinct smell from the brakes. Smoke may be evident after several stops as well.**

**Also on the 8th or 9th stop, some friction materials will experience "green fade". This is a slight fading of the brakes. The fade will stabilize, but not completely go away until the brakes have cooled.**

**After the break-in cycle is finished, there will be a blue tint color on the rotor with a light gray film on the rotor face. The blue tint indicates the rotor has reached the proper break-in temperature and the gray film is pad material starting to transfer onto the rotor face. This is normal and good!**

**If racing or higher performance pads are being used, add four stops from 80 to 5-10mph and if a full race pad, four stops from 100 to 5-10 mph.**

**After the first break in cycle shown above, the brakes will still not be operating at their best capacity. A second or third bed-in cycle is typically necessary before the brakes really start to "come in". A "cycle" is a series of stops with a cool down in between each cycle.**

***StopTech does not endorse speeding on public roads. If going above the legal speed limit, do so in a safe area, away from traffic at your own risk.***

**After the final stop of each cycle, drive as much as possible without using the brakes to cool off the system. Ideally, the brakes should be allowed to cool to ambient temperature before using again.**

**DO NOT COME TO A COMPLETE STOP WHEN THE SYSTEM IS HOT AND LEAVE YOUR FOOT ON THE PEDAL. PAD MATERIAL WILL IMMEDIATELY TRANSFER TO THE ROTOR CAUSING A VIBRATION.**

**If you have any questions about rotor and pad break in, or any aspect of your StopTech brake kit or brakes in general, please contact our Customer Service Department at 310-325-4799 X 105 or e-mail us at support@stoptech.com**

**Thank you** for selecting StopTech, we realize you had a choice in selecting a big brake upgrade for your vehicle and know you'll be happy with our system.

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